

ESTIMATION OF THE OVERALL EFFECT OF PM₁₀ ON HOSPITAL ADMISSIONS FOR RESPIRATORY DISEASES IN NINE CITIES IN THE METROPOLITAN REGION OF SÃO PAULO (MRSP), BRAZIL

Clarice Umbelino Freitas,: *Epidemiological Surveillance Center, Department of Health, São Paulo, Brazil.*

Washington Junger,: *Universidade Estadual do Rio de Janeiro, Rio de Janeiro, Brasil*

Antonio Ponce De Leon,: *Universidade Estadual do Rio de Janeiro, Rio de Janeiro, Brasil*

Gouveia, Nelson: *Universidade de São Paulo, São Paulo, Brasil*

Mirta Alcira Ferro Rodrigues Silva,: *Epidemiological Surveillance Center, Department of Health, São Paulo, Brazil*

Rogério Araujo Christensen,: *Epidemiological Surveillance Center, Department of Health, São Paulo, Brazil*

Background and aims: The MRSP has 39 municipalities in an area of 7.9 km² and a population of 19.7 million inhabitants. This area has 22 air monitoring stations of air quality that measures PM₁₀ across 9 cities. In these cities was conducted time series study to evaluate the impact of PM₁₀ on hospital admissions for respiratory diseases and meta-analysis was performed for overall risk assessment for PM₁₀ in the region to estimate the global risk.

Methods: Cities specific analyses were carried out using a common framework. The library ARES developed for R application was used to analyze the relation between admissions for respiratory illnesses and PM₁₀. This analysis was done in generalized additive models Poisson regression. The models accounted for seasonality, secular trends and climate in the analysis of each city. City specific estimates were summarized by means of a meta-analysis.

Results: It was found positive and significant association between respiratory disease and PM₁₀ in seven cities. The random effect estimates for respiratory disease and PM₁₀ for the nine cities was 1.33% [95%IC 0.53; 2.14] change for 10 µg/m³.

Conclusions: It was found overall significant risk for respiratory diseases and PM₁₀ in the selected municipalities of the MRSP.